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| EXAMINER | |
|---|---|
| MEHRMANESH, ELMIRA | |
| **ART UNIT** | **PAPER NUMBER** |
| 2113 | |

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/612,613 | DAVIS ET AL. | |
| | Examiner | Art Unit | |
| | Elmira Mehrmanesh | 2113 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

This action is in response to an amendment filed on June 30, 2006 for the application of Davis et al., for a "Checkpointing and restarting long running web services" filed July 1, 2003.

Claims 1-24 are pending in the application.

Claims 1-2 are rejected under 35 USC § 101.

Claims 1-24 are rejected under 35 USC § 102.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-2 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claims 1-2, claimed limitations of "*processor configured...*" and "*logic programmed to...*" are not of statutory subject matter.

A processor configured or logic programmed to perform a method are merely software arrangements. The configuration of the processor is a computer program claimed as computer listings per se, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer

program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

In response to applicant's arguments, the last rejections of claims 3-24 have been withdrawn.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Doyle et al. (U.S. PGPUB No. 20040243915)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As per claim 1, Doyle discloses a checkpoint processor (Fig. 1, element 170) configured for coupling to individual Web services through a Web services engine (Fig. 1), said checkpoint processor comprising:

checkpoint logic (Fig. 1, element 170) programmed to store checkpoint data (Fig. 1, element 180) for the individual Web service instance invocations (Fig. 1, elements 130A, 130B)

restart logic (Fig. 2, element 220) programmed to restore said stored checkpoint data (Fig. 2, element 230) to a replacement for failed ones of the individual Web service instance invocations (Fig. 2, elements 240A, 240B)

cleanup logic programmed to removed (Page 3, paragraph [0036], lines 16-20 and page 4, paragraph [0045], lines 12-17) said stored checkpoint data for concluded, non-failed ones of the individual Web service instance invocations.

As per claim 2, Doyle discloses logic for identifying an asynchronous correlator for each one of the individual Web service instance invocations and for storing said asynchronous correlator in association with corresponding ones of said stored checkpoint data (Page 3, paragraph [0036]).

As per claim 3, Doyle discloses a method for managing checkpoints in a Web application, the method comprising the steps of:

storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 11-15 and Fig. 2, elements 250A, 250B)

responsive to a failure in said Web service instance, restarting a replacement Web service instance and providing said state object to a replacement Web service instance for said requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 4, Doyle discloses storing step further comprises storing a unique identifier for said requesting Web service instance along with said stored state object (Fig. 3, elements 320, 330, and 350).

As per claim 5, Doyle discloses storing step further comprises the steps of:

identifying an asynchronous correlator for said invocation (Page 4, paragraph [0039], lines 1-15 and Fig. 3, elements 320, 330, and 350) storing said identified asynchronous correlator along with said stored state object (Page 4, paragraph [0039], lines 1-15).

As per claim 6, Doyle discloses storing step comprises the steps of:

detecting a notable event in said Web service instance; and, responsive to said detection, storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 7 Doyle discloses storing step comprises the step of periodically storing a state object for an invocation of a requesting Web service instance (Page 3,

paragraph [0036], lines 16-20).

As per claim 8, Doyle discloses step of providing further comprises the step of providing said unique identifier to said replacement Web service instance (Fig. 3, element 340).

As per claim 9, Doyle discloses step of providing further comprises the step of providing said asynchronous correlator to said replacement Web service instance (Fig. 3, element 340).

As per claim 10, Doyle discloses step of discarding said stored state object when said Web service invocation has completed said invocation nominally (Page 4, paragraph [0045], lines 12-17).

As per claim 11, Doyle discloses step of storing state data for a handler chain managing said Web service instance (Page 4, paragraph [0043]).

As per claim 12, Doyle discloses storing a residency indicator for said Web service instance invocation (Page 4, paragraph [0039], lines 11-15)

registering at least one selected event (Fig. 1, element 190) which when received causes an initiation of said restarting and providing steps (Fig. 3, element 380).

As per claim 13, Doyle discloses step of restarting comprises the steps of:

determining whether an existing Web service instance can act as said replacement Web service instance (Page 2, paragraph [0019], lines 10-15).

and, if an existing Web service instance cannot be located which can act as said replacement Web service instance, instantiating a replacement Web service instance (Page 2, paragraph [0019], lines 15-18).

As per claim 14, Doyle discloses a machine readable storage having stored thereon a computer program for managing checkpoints in a Web application (Page 4, paragraph [0046]) the computer program comprising a routing set of instructions for causing the machine to perform the steps of (Pages 4-5, paragraph [0047])

storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 11-15 and Fig. 2, elements 250A, 250B)

responsive to a failure in said Web service instance, restarting a replacement Web service instance and providing said state object to a replacement Web service instance for said requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 15, Doyle discloses storing step further comprises storing a unique identifier for said requesting Web service instance along with said stored state object (Fig. 3, elements 320, 330, and 350).

As per claim 16, Doyle discloses storing step further comprises the steps of:

identifying an asynchronous correlator for said invocation (Page 4, paragraph [0039], lines 1-15 and Fig. 3, elements 320, 330, and 350) storing said identified asynchronous correlator along with said stored state object (Page 4, paragraph [0039], lines 1-15).

As per claim 17, Doyle discloses storing step comprises the steps of:

detecting a notable event in said Web service instance; and, responsive to said detection, storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 18, Doyle discloses storing step comprises the step of periodically storing a state object for an invocation of a requesting Web service instance (Page 3, paragraph [0036], lines 16-20).

As per claim 19, Doyle discloses step of providing further comprises the step of providing said unique identifier to said replacement Web service instance (Fig. 3, element 340).

As per claim 20, Doyle discloses said step of providing further comprises the step of providing said asynchronous correlator to said replacement Web service instance

(Fig. 3, element 340).

As per claim 21, Doyle discloses step of discarding said stored state object when said Web service invocation has completed said invocation nominally (Page 4, paragraph [0045], lines 12-17).

As per claim 22, Doyle discloses step of storing state data for a handler chain managing said Web service instance (Page 4, paragraph [0043]).

As per claim 23, Doyle discloses storing a residency indicator for said Web service instance invocation (Page 4, paragraph [0039], lines 11-15)

registering at least one selected event (Fig. 1, element 190) which when received causes an initiation of said restarting and providing steps (Fig. 3, element 380).

As per claim 24, Doyle discloses step of restarting comprises the steps of:

determining whether an existing Web service instance can act as said replacement Web service instance (Page 2, paragraph [0019], lines 10-15).

and, if an existing Web service instance cannot be located which can act as said replacement Web service instance, instantiating a replacement Web service instance (Page 2, paragraph [0019], lines 15-18).

***Response to Arguments***

Applicant's arguments filed June 30, 2006 have been fully considered with the examiner's response detailed below.

With regards to the 35 USC § 101 rejection of claims 1-2, Examiner states that applicant's arguments are not persuasive and that the assertions with regards to the above claims are not legally in error as stated by the applicant. The plain meaning of claim language is directed to arrangement of software. Noting applicant's specifications (page 15, paragraph [0035]), which states "The present invention can be realized in hardware, software, or a combination of hardware and software." Also (specifications, page 8-9) and viewing figure 1, Web serves engine 150 and checkpoint processor 160 are interpreted as software and no hardware is disclosed. Applicant argues that claims 1-2 are directed to a machine is all that is required to satisfy the requirements of 35 USC § 101. Examiner respectfully disagrees based on the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility. In view of applicant's specifications as noted above, the claim language is directed to arrangement of software, therefore is not of statutory subject matter. M.P.E.P 2111.01 (II) states "In construing claim terms, the general meanings gleaned from reference sources, such as dictionaries, must always be compared against the use of the terms in context, and the intrinsic record must always be consulted to identify which of the different possible dictionary meanings is most consistent with the use of the words by the inventor.); *ACTV, Inc. v. The Walt Disney Company*, 346 F.3d 1082, 1092, 68 USPQ2d 1516, 1524 (Fed. Cir. 2003)". And further "If more than one extrinsic definition is consistent

with the use of the words in the intrinsic record, the claim terms may be construed to encompass all consistent meanings. *Tex. Digital,* 308 F.3d at 1203, 64 USPQ2d at 1819. See also *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342, 60 USPQ2d 1851, 1854 (Fed. Cir. 2001)".

As per claim 1 applicant argues that optimization metrics are not used in a replacement for a failed individual web service instance invocation. Examiner respectfully disagrees. Doyle discloses a method and system for managing autonomic failover in a services infrastructure, such as a Web services or grid services hosting infrastructure (page 2, paragraph [0019], lines 1-4). Noting paragraph [0036], line 1-4, grid coordinator (Fig. 1, element 150) can store optimization metrics (Fig. 1, element 180).

Doyle's optimization logic uses best-fit analysis applied to service metrics (page 4, paragraph [0045], lines 1-7). Paragraph [0036] describes optimization metrics can specify for each service instance various information such as revenue per unit of performance. The best-fit analysis uses service metrics and optimization metrics to determine replacement nodes. Figure 3 shows that upon identifying a replacement node, metrics are retrieved (Fig. 3, element 340). Paragraph [0042], lines 13-15 disclose using the service metrics 230 and platform metrics 250A, 250B to determine the replacement node.

With regards to "cleanup logic" limitation of claim 1, Doyle discloses updating the optimization metrics with regards to individual service instances (page 3, paragraph [0036], lines 16-20). Updating the data in optimization metrics will save the last state of

the individual service instances, which will clean up the prior data in the optimization metrics.

As per claims 3 and 14, Examiner notes that platform metrics 250A, 250B are for replacement nodes, however Doyle discloses logging (e.g. "storing a state object") service metrics for each of the individual service instances (page 3, paragraph [0038], lines 6-9) and retrieving those logs for the failed one of the service instances (Fig. 3, element 340).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1 .136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1 .136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmira Mehrmanesh whose telephone number is (571) 272-5531. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert W Beausoliel

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